WORKING PAPER NO. 6

Rural Welfare Change in West Java

BAPPENAS/USAID/DAI FOOD POLICY ADVISORY TEAM
OCTOBER 2001

Push or Pull?
Employment, Wages and Living Conditions in Rural West Java

West Java is Indonesia's most populous province, with more than forty million inhabitants. It is also Indonesia's most industrialized province. Manufacturing accounts for 38% of provincial GDP, compared to a national figure of 27%, and manufacturing value added in West Java is more than 45% larger than in any other province. Agriculture accounts for only 13% of West Java's GDP, as against a national figure of 16%.[1] With the exception of Jakarta, West Java also has the smallest share of its work force employed in agriculture of any province, with agriculture accounting for only 26% of total employment in 1997 compared to a national figure of 41%. In line with the relatively small role of agriculture in the provincial economy, West Java is the most urbanized large province, with 50% of its population living in areas categorized as urban.[2]

The industrialization and urbanization of West Java took place mainly during the three decade period of the New Order government, from the late 1960s until 1997. At the start of this period agriculture accounted for more than 35% of provincial GDP and for 58% of employment, while 88% of the population lived in rural areas.[3]

The urbanization and industrialization of West Java has been viewed in different ways by different observers. Some have seen this as an inevitable part of economic progress. They point out that in almost all economically successful countries, the share of agriculture in GDP and employment has fallen over time as living standards have risen. From this perspective, the changes in West Java over the past three decades reflect economic success. Other observers, however, have seen these changes as a consequence of an urban-biased development strategy. In their view, the government neglected agriculture and rural areas, causing stagnation of the rural economy. Rather than a successful development strategy, the New Order experience is seen as a development failure.

Critics of Indonesia's previous development strategy have argued that the movement of labor from agriculture to industry, and from rural areas to urban areas, reflects worsening conditions in the countryside. In this view, labor has been "pushed" out of farming by industrialization, urban sprawl and rural economic stagnation. By contrast, those who see the economic development of West Java as emulating the success of other Asian economies, such as Korea, Taiwan and Malaysia, view the movement of labor out of agriculture and out of rural areas as the result of a "pull" process, with improved income earning opportunities in non-agricultural sectors drawing surplus rural labor into more productive occupations.

The best indicator of whether economic development has been characterized by "push" or "pull" is real wage trends. If labor has been pushed out of agriculture by deteriorating rural conditions, the supply of labor should have increased relative to demand, causing real wages to drop. By contrast, if labor has been pulled out of agriculture by better income earning opportunities in other sectors, the demand for labor should have increased relative to supply, resulting in higher real wages. Changes in real wages over time therefore provide a simple test of the "push" versus "pull" hypothesis.

---

[1] Badan Pusat Statistik, regional GDP data for 1997.

[2] Badan Pusat Statistik, *Statistik Kesejahteraan Rakyat 2000*, Table 1.1A.

[3] Badan Pusat Statistik, Sensus *Penduduk Indonesia 1971*, and *Pendapatan Regional Propinsi-Propinsi di Indonesia 1975-1978*.

Another way to evaluate the "push-pull" hypothesis is to look at rural living standards. If labor has been pushed out of agriculture and out of rural areas, this should be reflected in a decline in rural living conditions over time. Alternatively, if labor has been pulled out of agriculture and rural areas, this should be reflected in an improvement in rural living conditions over time.

This brief analysis uses three simple indicators of changes in rural economic conditions in West Java over the past three decades to evaluate which hypothesis, push or pull, is most consistent with known facts. The three indicators used are: 1) real wages for agricultural laborers (*buruh tani*), 2) the quality of rural housing, and 3) food consumption. Four indicators of food consumption are presented: i) average daily per capita consumption of protein, ii) average daily per capita consumption of calories, iii) expenditure on starches as a share of total food expenditures (the starchy staple ratio) and iv) expenditure on meat, fruit and eggs as a share of total food expenditure.

Data on wages for farm laborers have been published monthly by BPS for more than two decades, making this one of the longest and most consistent statistical series in Indonesia. Wages are measured in nominal rupiah and must therefore be adjusted for inflation in order to make possible a comparison across time. This creates a measurement problem, because a perfect deflator is never available. However, if different deflators give similar results, strong conclusions can still be obtained from wage data.

Rural housing quality is a good indicator of changes in rural conditions because housing is one of the first things that rural families invest in when their incomes rise, and because housing quality is a non-monetary indicator and therefore does not need to be adjusted for inflation. Other measures, such as real income, real expenditure or poverty, are much more difficult to measure than the quality of rural housing.

Per capita consumption of protein and calories can also be good indicators of changes in rural welfare since these are non-monetary indicators that do not need to be adjusted for inflation.

The starchy staple ratio measures the share of cereals and tubers in total household food expenditure. This measure is highly correlated with household income. As can be seen in Table 1, rural households with monthly expenditures in 1999 of less than Rp 40,000 per capita allocated 66% of their food expenditure to cereals and tubers, whereas households with monthly per capita expenditures in excess of Rp 500,000 allocated just 14% of their food expenditures to cereals and tubers.[4] A decline in this ratio over time is therefore a good indicator of welfare improvement.

Table 1 also shows that there is a high correlation between household income and the share of food expenditure devoted to meat, fruit and eggs. In 1999, lower income rural households in West Java allocated just 5% of their food budget to meat, fruit and eggs, but rural households with monthly per capita expenditures above Rp 500,000 allocated 28% of their food budget to meat, fruit and eggs. An increase in the ratio of meat, fruit and egg expenditures to total food expenditures over time would therefore indicate an improvement in rural welfare.

[4] Food expenditure includes the estimated value of food produced by the household for own consumption.

Table 1. Household expenditure on starches, and on meat, fruit and eggs, as a share of total food expenditure, rural West Java, by household expenditure class in 1999

Per capita expenditure class[a)] (rupiah per month)	% of total households in each expenditure class	Cereals and Tubers share of per capita food expenditure	Meat, eggs and fruit share of per capita food expenditure
<40,000	0.3%	66%	5%
40,000-59,999	5.7%	56%	4%
60,000-79,999	19.0%	49%	5%
80,000-99,999	23.0%	43%	6%
100,000-149,999	33.7%	35%	8%
150,000-199,999	11.4%	28%	12%
200,000-299,999	5.1%	22%	16%
300,000-499,999	1.5%	17%	20%
> 500,000	0.3%	14%	28%
Total (or average)	100%	36%	9%

a) Expenditure classes are based on monthly per capita expenditure for all goods and services, including both food and non-food items.

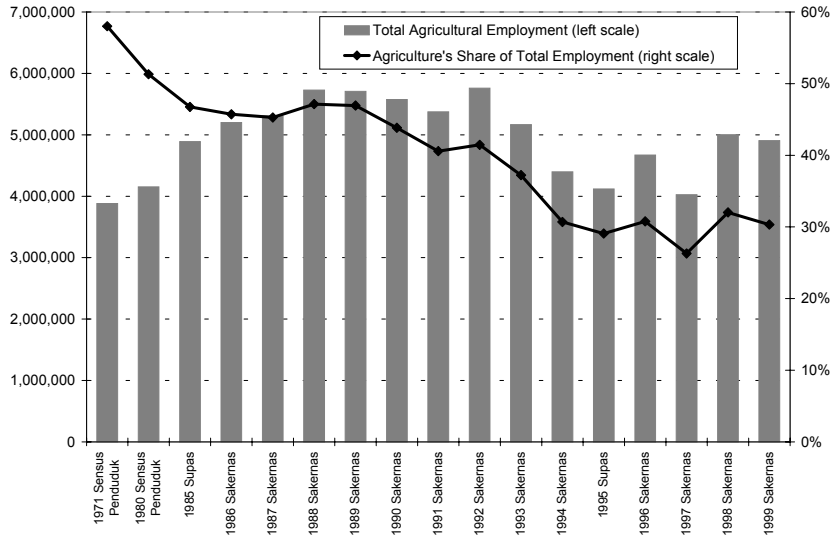
Source: BPS, *Pengeluaran Untuk Konsumsi Penduduk Indonesia 1999*

The impact of industrialization and urbanization on the rural economy, and the issue of "pull" versus "push" is important not just in West Java but for the whole of Indonesia. However, the process of urbanization and industrialization, and the decline in agriculture's share of GDP and employment, has been more intense in West Java than in any other province. Consequently, West Java is particularly well suited to studying the impact of urbanization and industrialization on the rural economy.

Employment Trends

Figure 1 shows the evolution of employment in West Java over the period 1971-1999. As can be seen, the share of agriculture in provincial employment declined from 58% in 1971 to 26% in 1997. Total employment in agriculture, however, continued to rise until the late 1980s, peaking around 1988. Between 1988 and 1997 the number of people employed in agriculture in West Java fell from 5.73 million to 4.03 million, or by 30%, while total employment in all sectors rose by 26%, from 12.16 million to 15.31 million (see appendix Table A-1).

Figure 1. Agricultural Employment in West Java, 1971-1999

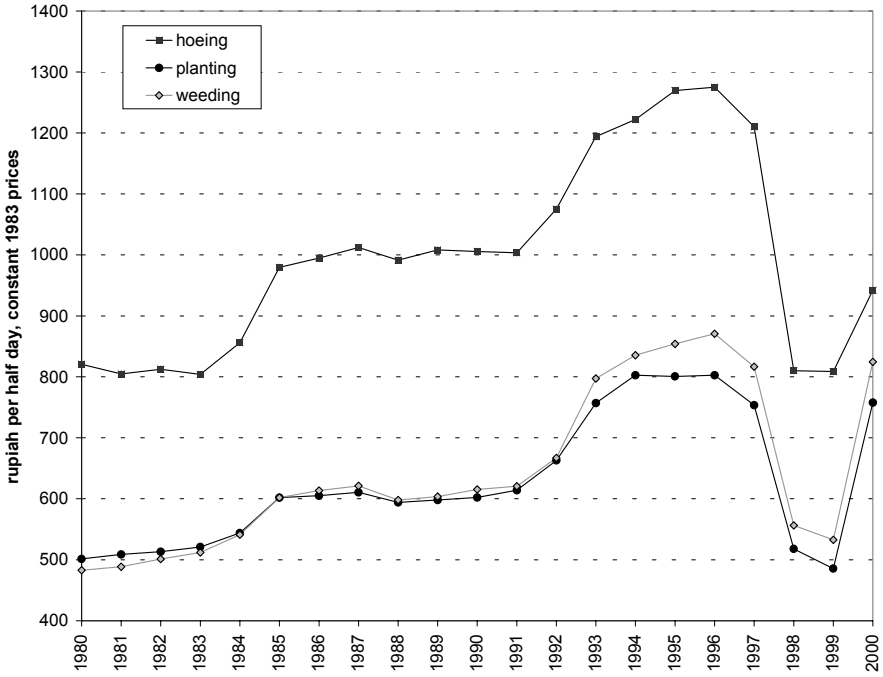


Wage Trends

As noted previously, the decline in the share of agriculture in total employment and the absolute decline after the late-1980s in agricultural employment could be the result of either a push process or a pull process. If people were being forced out of agriculture by deteriorating rural conditions, one would expect to see a *decline* in real wages in rural areas. However, if people were being attracted to other occupations by improved income earning opportunities, one would expect to see a *rise* in real wages over time.

Figures 1 and 2 show the evolution of real wage rates for agricultural laborers in West Java for three types of work – hoeing (*mencangkul*) planting (*menanam*) and weeding (*menyiangi*) – over the period 1980 to 2000. Figure 1 uses the rural consumer price index from the farmer's terms of trade survey to deflate nominal wages. Figure 2 uses the retail price of rice (beras) in rural markets to deflate nominal wages. A summary comparison using these two different deflators is shown in Table 2 (details for each series can be found in the appendix).

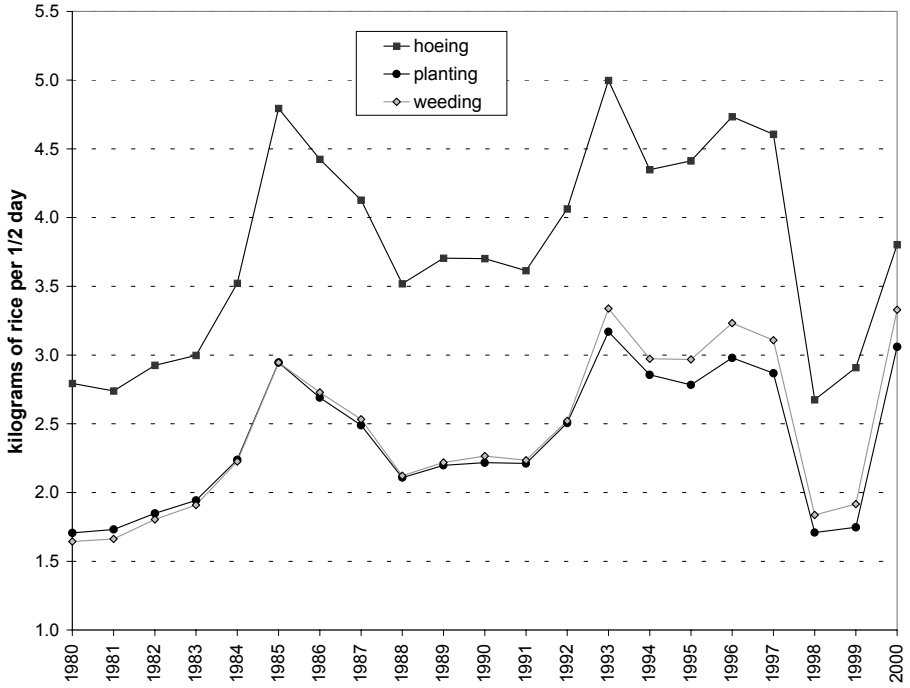
Figure 1. Real wages for agricultural laborers in West Java, 1980-2000
(deflated by the rural consumer price index)



Source: See Appendix Table A-2.

Both figures show a significant increase in the real wage for hoeing, planting and weeding between the early 1980s and the mid-1990s, followed by a sharp drop in 1998 and a recovery in 1999 and 2000. Looking at Table 2, if the rural CPI is used as a deflator the average real wage increased by 54%-70% between the early 1980s and the mid-1990s. Using the price of rice as a deflator, the increase in real wages over this period ranged from 58% to 75%.

Figure 2. Real wages for agricultural laborers in terms of rice, West Java 1980-2000
(nominal wage deflated by the retail price of *beras*)



Source: See Appendix Table A-3.

Figures 1 and 2 also show that while there was a sharp drop in the real wage for agricultural laborers in West Java during the first year of the economic crisis, by 2000 the real wage for planting and weeding had almost recovered to the pre-crisis level. The real wage for hoeing, on the other hand, remained well below the pre-crisis level. If the price of rice is used to deflate nominal wages, the real wages for planting and weeding were actually higher in 2000 than just before the crisis.

Table 2. Real wage trends for agricultural laborers in West Java, 1980-2000

	Average 1980-1983	Average 1994-1997	Percentage Change
Nominal wage in rupiah per 1/2 day			
-Hoeing	651	3,733	474%
-Planting	412	2,365	475%
-Weeding	400	2,532	533%
Retail price of rice in rural areas (Rp/kg)	226	823	264%
Rural CPI (1983=100)	80.3	300.2	274%
Real wage (deflated by the rural CPI)			
-Hoeing	810	1,244	54%
-Planting	511	790	55%
-Weeding	496	844	70%
Real wage in terms of rice (kgs per 1/2 day)			
-Hoeing	2.86	4.53	58%
-Planting	1.81	2.87	59%
-Weeding	1.75	3.07	75%

Source: See Appendix Tables A-2 and A-3.

Rural Housing Quality

In most areas of rural Java, economic differences between households within a village can be judged relatively easily by the quality of housing. Poor families generally live in dwellings with a dirt floor, bamboo walls and thatch roof (*ijuk* or *daun-daun*). Better off families live in houses with cement or tile floors, brick walls and *genteng* (tile) roofs. A change over time in the proportion of rural families living in low quality housing can therefore serve as a simple indicator of rural welfare trends.

Table 3 shows the quality of rural housing in West Java between 1976 and 2000. Three indicators of housing quality are presented – floor material, wall material and roof material. As can be seen, there was a very marked reduction in the percentage of rural households living in dwellings with a dirt floor and bamboo walls, and a more moderate but steady decline in the percentage of households living in a dwelling with a thatch roof. The decline in the percentage of West Java rural households with a dirt floor, from 28% in 1976 to 9% in 2000, is particularly important because this indicates that even the poorest rural families experienced an improvement in living standards over the past twenty-five years. The sharp decline between 1992 and 2000 in the prevalence of dirt floors, with the percentage dropping from 18% to 9% over this eight year period, also suggests that the rate of improvement in living standards for the rural poor in West Java accelerated in the 1990s. This observation is supported by the finding that the percentage of rural dwellings with bamboo walls fell by only 3.5 percentage points between 1985 and 1992 but then dropped by 19.5 percentage points between 1992 and 2000.

Table 3. Rural housing quality in West Java, 1976 to 2000
(percentage of households by main material of the floor, wall and roof)

FLOOR MATERIAL				
	1976	1985	1992	2000
Tile/cement (*ubin/semen*)	18.9%	40.1%	47.5%	66.2%
Wood/bamboo (*kayu/bambu*)	52.3%	35.8%	34.7%	24.5%
Dirt (*tanah*)	28.1%	23.8%	17.7%	9.3%
Other (*lainnya*)	0.7%	0.3%	0.1%	0.0%
Total (*jumlah*)	100%	100%	100%	100%
WALL MATERIAL				
	1976	1985	1992	2000
Brick (*tembok*)	15.6%	35.4%	39.6%	58.1%
Wood (*kayu*)	6.4%	4.8%	4.5%	5.4%
Bamboo (*bambu*)	77.7%	59.0%	55.5%	36.0%
Other (*lainnya*)	0.3%	0.8%	0.4%	0.5%
Total (*jumlah*)	100%	100%	100%	100%
ROOF MATERIAL				
	1976	1985	1992	2000
Tile (*genteng*)	n.a.	90.0%	90.9%	94.7%
Concrete/wood/zinc (*beton/kayu/seng*)	n.a.	1.9%	1.9%	2.6%
Thatch (*ijuk/daun*)	n.a.	7.9%	6.8%	2.7%
Other (*lainnya*)	n.a.	0.2%	0.4%	0.0%
Total (*jumlah*)	n.a.	100%	100%	100%

Source: Data for 1976 from BPS, *Ringkasan Penduduk Indonesia Menurut Propinsi dan Pulau 1976 (SUPAS 1976)*. Data for 1985-2000 from BPS, *Statistik Kesejaterahaan Rakyat*, various issues.

It might be argued that the steady improvement in rural housing quality in West Java between the 1970s and the year 2000 was the result of improvements in rural transportation that lowered the cost of building materials, such as cement and roof tiles, rather than proof of rising real incomes. However, it is difficult to believe that rural families would be able to build better quality houses if real incomes in rural areas were falling. Moreover, improvements in rural roads not only reduce the cost of building materials in rural areas but also stimulate the rural economy -- by allowing farmers to sell their output in urban markets, by encouraging industries to locate in rural areas and by creating additional employment opportunities for farm household members in nearby towns. Thus, if the vast improvement in rural housing shown in Table 3 is the result of cheaper building materials due to improved rural infrastructure, this in itself is a sign that economic conditions in rural areas improved. Such improvement is not consistent with the view that labor was pushed out of farming and rural areas.

Food Indicators

Table 4 shows four food-based indicators of rural welfare for households in West Java: 1) average per capita daily consumption of protein, 2) average per capita daily consumption of calories, 3) the starchy staple ratio, and 4) the ratio of spending on meat, eggs and fruit to total food expenditure.

Table 4. Food-based welfare indicators for rural households in West Java, 1980-1999

Year	Protein[a] (grams)	Calories[a]	Starchy Staple Ratio[b]	Meat, Eggs & Fruit Ratio[c]
1980	45.32	1,899.73	45%	10%
1984	46.03	1,891.07	39%	11%
1990	48.84	2,021.15	37%	14%
1996	58.91	2,150.84	28%	15%
1999	51.68	1,984.65	36%	9%

a) Average daily per capita consumption.
b) Share of cereals and tubers in household food expenditure.
c) Share of meat, eggs and fruit in household food expenditure
Source: BPS, *Konsumsi Kalori dan Protein Penduduk Indonesia per Propinsi*, various issues and *Pengeluaran Untuk Konsumsi Penduduk Indonesia per Propinsi, Survei Social Ekonomi Nasional*, various issues.

All four indicators showed significant improvement between 1980 and 1996. Average per capita consumption of protein increased by 30% and average per capita consumption of calories increased by 13% over this period. Between 1980 and 1996, the starchy staple ratio fell from 45% to 28% and the share of food expenditure allocated to meat, eggs and fruit rose from 10% to 15%. Thus, food-based measures of welfare indicate that rural household in West Java experienced a major improvement in living conditions during the period 1980-1996.

One possible shortcoming with using food ratios, such as the starchy staple ratio, to measure changes in household welfare over time is that food ratios can change both as a result of real income changes (the income effect) and as a result of relative price changes (the substitution effect). For example, if the price of cereals and tubers rises relative to other food prices, households might substitute away from starches even if real income does not change. An Observed decline in the starchy staple ratio might therefore have nothing to do with rising real income.

In order to know whether the sharp drop in the starchy staple ratio shown in Table 4 was due to relative price changes or to real income gains, it is necessary to examine price indexes. Table 5 shows the overall CPI, the price index for food (*makanan*), and price indexes for selected food sub-sectors, including grains (*padi-padian*), meat (*daging*), eggs and milk (*telur, susu dan hasil-hasilnya*), and fruit (*buah-buahan*). The table shows that between 1980 and 1996, the price of grains increased less than the overall price of food and less than the CPI. By contrast, the price of meat, eggs and fruit increased more than the overall price of food and more than the CPI. This indicates that the drop in the starchy staple ratio from 45% in 1980 to 28% in 1996 was due to real income growth; the substitution effect was actually working in the opposite direction. Likewise, the increase in the share of food expenditure devoted to meat, eggs and fruit, from 10% in 1980 to 15% in 1996, was also due to real income growth. The substitution effect by itself would have caused rural households to consume less meat, eggs and fruit.

Table 5. Consumer price indexes for food and for food sub-categories, 1980-1997

Year	CPI	All Food	Grains	Meat	Eggs and milk	Fruit
1980	100.0	100.0	100.0	100.0	100.0	100.0
1981	112.2	114.8	109.6	112.4	114.0	112.5
1982	122.9	121.6	114.7	114.8	121.2	123.1
1983	137.4	132.7	126.6	119.8	136.2	137.6
1984	151.7	145.8	129.6	133.0	145.9	152.0
1985	158.9	149.3	127.2	144.0	156.8	159.2
1986	168.2	162.2	139.0	162.1	169.5	168.5
1987	183.8	180.1	151.2	185.0	199.5	184.1
1988	198.5	203.4	182.9	200.3	221.6	198.9
1989	211.3	219.6	187.8	213.7	260.1	211.7
1990	227.8	235.3	198.3	248.9	285.0	204.8
1991	249.1	253.8	213.7	286.0	295.8	220.0
1992	267.8	274.0	229.7	312.6	312.9	249.5
1993	293.7	292.0	224.3	338.5	351.1	278.2
1994	318.8	323.4	257.9	378.4	364.1	304.6
1995	348.8	366.0	308.4	432.0	380.7	365.6
1996	376.5	400.2	327.3	473.3	421.7	399.2
1997	401.3	435.7	363.3	501.4	450.6	439.6

Source: BPS, *Statistical Yearbook of Indonesia* and *Indikator Ekonomi*, various issues.

While the food-based welfare indicators shown in Table 4 indicate that rural living conditions were improving between 1980 and 1996, they also suggest that conditions worsened during the economic crisis. All four indicators deteriorated between 1996 and 1999. This may have been partly due to a substitution effect, as the price of food rose more rapidly than other prices between February 1996 and February 1999, and the price of rice rose particularly rapidly over this period.[5] However, the changes also suggest a major deterioration of rural household welfare during the economic crisis.

[5] Note that the Susenas household survey is always conducted in either January or February.

Conclusion

The indicators of rural welfare presented in this brief analysis all point in one direction: toward a major improvement in real income and living conditions for rural households in West Java between the 1970s and early 1980s, on the one hand, and the mid-1990s on the other. The sharp increase in real wages for agricultural laborers in West Java between the early 1980s and the mid-1990s, shown in Figure 1, is the most powerful evidence that labor was pulled out of agriculture, rather than being pushed. However, wage data are frequently challenged because of the difficulty of turning nominal wages into real, inflation-adjusted wages. The fact that both deflators show the same general trend for real wages increases the level of confidence that can be placed in these data. More important is the fact that both housing quality data and food consumption data provide strong additional support to the finding that real incomes were rising, which supports the view that labor was pulled out of agriculture by improved income earning opportunities in other activities, rather than being pushed out by deterioration of the rural economy.

The data on real wage trends and on changes in housing quality also confirm that the rural poor participated in the rise in living standards during this period. Agricultural laborers are among the poorest members of rural society and the rise in their real wage is therefore an indication that growth benefited not just the elite but also those at the bottom of the rural income distribution. The sharp drop in the number of rural families living in houses with dirt floors and bamboo walls reinforces this finding.

APPENDIX

Table A-1. Total Employment and Agricultural Employment in West Java, 1971-1999

(rural + urban)

Source and Year	Agricultural Employment	Total Employment	Ratio
1971 Sensus Penduduk	3,880,970	6,689,323	58.0%
1980 Sensus Penduduk	4,151,755	8,090,071	51.3%
1985 Supas	4,889,178	10,455,491	46.8%
1986 Sakernas	5,199,921	11,372,718	45.7%
1987 Sakernas	5,309,297	11,723,788	45.3%
1988 Sakernas	5,730,725	12,155,028	47.1%
1989 Sakernas	5,707,929	12,157,582	46.9%
1990 Sakernas	5,576,083	12,718,594	43.8%
1991 Sakernas	5,375,238	13,242,168	40.6%
1992 Sakernas	5,760,024	13,892,887	41.5%
1993 Sakernas	5,167,164	13,876,469	37.2%
1994 Sakernas	4,398,489	14,327,990	30.7%
1995 Supas	4,119,192	14,163,322	29.1%
1996 Sakernas	4,672,419	15,176,561	30.8%
1997 Sakernas	4,026,438	15,307,495	26.3%
1998 Sakernas	5,003,662	15,623,836	32.0%
1999 Sakernas	4,907,484	16,181,026	30.3%

Table A-2. Nominal Wage, Rural CPI and Real Wage of *Buruh Tani*, 1980-2000

(*West Java*)

	Nominal Wage (*rupiah per ½ day*)			Rural CPI	Real Wage (*constant 1983 prices*)		
Year	Hoeing	Weeding	Planting	*1983=100*	Hoeing	Weeding	Planting
1980	532	325	313	65	821	501	483
1981	598	378	363	74	805	509	489
1982	668	422	412	82	813	513	501
1983	804	521	512	100	804	521	512
1984	916	582	579	107	856	544	541
1985	1,048	644	644	107	979	602	602
1986	1,174	714	724	118	995	605	614
1987	1,336	806	820	132	1012	611	621
1988	1,497	897	903	151	991	594	598
1989	1,623	963	972	161	1008	598	604
1990	1,770	1,060	1,083	176	1006	602	615
1991	1,997	1,222	1,235	199	1004	614	621
1992	2,322	1,432	1,441	216	1075	663	667
1993	2,698	1,711	1,802	226	1194	757	797
1994	3,104	2,039	2,122	254	1222	803	835
1995	3,593	2,266	2,417	283	1270	801	854
1996	3,914	2,464	2,673	307	1275	803	871
1997	4,320	2,690	2,915	357	1210	754	817
1998	5,335	3,410	3,663	658	810	518	556
1999	6,718	4,034	4,425	831	809	486	533
2000	7,829	6,299	6,853	831	942	758	825

Source: Wage data from BPS, *Statistik Upah Buruh Tani di Pedesaan*, various issues.
Rural CPI (*indeks konsumsi rumahtanga*) from BPS, *Statistik Nilai Tukar Petani di Indonesia*, various issues.

Table A-3. Real Wage of *Buruh Tani* in Terms of Rice, 1980-2000.

(*West Java*)

	Nominal Wage *(rupiah per ½ day)*			Rural Price of *Beras*	Real Wage in Terms of Rice *(nominal wage ÷ price of* beras*)*		
Year	Hoeing	Weeding	Planting	(Rp/kg)	Hoeing	Weeding	Planting
1980	532	325	313	*190**	2.79	1.71	1.64
1981	598	378	363	*218**	2.74	1.73	1.66
1982	668	422	412	*228**	2.93	1.85	1.80
1983	804	521	512	268	3.00	1.94	1.91
1984	916	582	579	260	3.52	2.24	2.23
1985	1,048	644	644	219	4.79	2.95	2.95
1986	1,174	714	724	265	4.42	2.69	2.73
1987	1,336	806	820	324	4.13	2.49	2.53
1988	1,497	897	903	425	3.52	2.11	2.12
1989	1,623	963	972	438	3.71	2.20	2.22
1990	1,770	1,060	1,083	478	3.70	2.22	2.27
1991	1,997	1,222	1,235	553	3.61	2.21	2.23
1992	2,322	1,432	1,441	572	4.06	2.51	2.52
1993	2,698	1,711	1,802	540	5.00	3.17	3.34
1994	3,104	2,039	2,122	714	4.35	2.86	2.97
1995	3,593	2,266	2,417	814	4.41	2.78	2.97
1996	3,914	2,464	2,673	827	4.73	2.98	3.23
1997	4,320	2,690	2,915	938	4.61	2.87	3.11
1998	5,335	3,410	3,663	1,995	2.67	1.71	1.84
1999	6,718	4,034	4,425	2,310	2.91	1.75	1.92
2000	7,829	6,299	6,853	2,059	3.80	3.06	3.33

*Calculated from the percentage change in the retail price of rice in Bandung.

Source: Wage data from BPS, *Statistik Upah Buruh Tani di Pedesaan*, various issues. Retail rice price in rural West Java from BPS, *Statistik Harga Konsumen Pedesaan di Indonesia*, various issues. Note that the rural retail price of *beras* was not published by BPS prior to 1983. Consequently, for the years 1980-1982, the price of *beras* has been calculated using the annual percentage change in the retail price of *beras* in Bandung, as reported in Bank Indonesia, *Laporan Mingguan*, various issues.